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10/624,127

07/21/2003

Denis G. Fauteux

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09/18/2006

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EXAMINER

RHEE, JANE J

ART UNIT

PAPER NUMBER

1745

DATE MAILED: 09/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/624,127

Applicant(s)

FAUTEUX, DENIS G.

Examiner

Jane Rhee

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Rejections Withdrawn

1. The 35 U.S.C. 102(b) rejection of claims 1-3,7-9 anticipated by Kajiura et al. has been withdrawn due to applicant's amendments filed on 7/10/2006.
2. The 35 U.S.C. 103(a) rejection of claims 4-6,13-20 over Kajiura et al. in view of Bruneau has been withdrawn due to applicant's amendments filed on 7/10/2006.
3. The 35 U.S.C. 103(a) rejection of claims 10-12,21-31 over Kajiura et al. in view of Warren has been withdrawn due to applicant's amendments filed on 7/10/2006.

New Rejections

Claim Objections

4. Claim 5 is objected to because of the following informalities: Claim 5 depend on claim 5. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-9,13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajiura et al. (EP113511) in view of Bruneau (3988168).

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As to claim 1, Kajiura et al. discloses an electrode assembly divided to a plurality of segments which are each separated by a fold to in turn facilitate a fan fold orientation (figure 1b) comprising a separator (figure 1a number 11) having an anode side (figure 1a number 6) and a cathode side (figure 1a number 2), an anode current collector (figure 1 a number 8) and a cathode current collector (figure 1a number 4), wherein an anode active material is associated with the anode current collector (figure 1a number 7 and 8) and wherein the cathode active material is associated with the cathode current collector (figure 1a number 3 and 4), and wherein the anode active material is associated with at least a portion of the anode side (figure 1a number 7,8) and wherein the cathode active material is associated with at least a portion of the cathode side (figure 1a number 3,4) and wherein the portions of the separator corresponding to at least one of folds are substantially free of at least one of the anode active material (figure 1b number 10) and the cathode active material (figure 1b number 5) resulting in a gap between the respective side of the separator and the respective current collector (figure 1b number 5 and 10).

As to claim 2, Kajiura et al. discloses that the portions of the separator corresponding to at least one of the folds are substantially free of each of the anode active material and the cathode active material resulting in a gap between each of the separator and the respective current collector (figure 1b number 10,5). As to claim 3, Kajiura et al. discloses that the portion of the separator corresponding to each of the folds are substantially free of each of the anode active material and cathode active

material resulting in a gap between each side of the separator and the respective current collector proximate each of the folds (figure 1b number 10,5).

As to claim 7, Kajura et al. discloses that the anode current collector is coextent with the anode active material (figure 1b number 7,8). As to claim 8, Kajura et al. discloses that the cathode current collector is coextent with the cathode active material (figure 1b number 3,4). As to claim 9, Kajura et al. discloses that at least one of a portion of the anode active material and a portion of the cathode active material is associated with at least one of a portion of the anode side and a portion of the cathode side respectively via an adhesive (col. 7 lines 54-55).

As to claim 1, Kajura et al. fails to disclose that the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors. As to claim 5, Kajura et al. fails to disclose that the upper and lower edge of the cathode side of the separator being substantially free of cathode active material and the cathode current collector.

Bruneau teaches that the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and

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cathode current collectors (col. 6 lines 35-39) for the purpose of providing an effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Kajiura et al. with the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors in order to provide an effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1) as taught by Bruneau.

As to claim 6, Kajura et al. discloses that the cathode active material and the cathode current collector are coextant and are substantially centered along the separator (figure 1b number 3,4).

As to claim 13, Kajiura et al. discloses an electrode assembly divided to a plurality of segments which are each separated by a fold to in turn facilitate a fan fold orientation (figure 1b) comprising a separator (figure 1a number 11) having an anode side (figure 1a number 6) and a cathode side (figure 1a number 2), an anode current collector (figure 1 a number 8) and a cathode current collector (figure 1a number 4), wherein an anode active material is associated with the anode current collector (figure

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1a number 7 and 8) and wherein the cathode active material is associated with the cathode current collector (figure 1a number 3 and 4), and wherein the anode active material is associated with at least a portion of the anode side (figure 1a number 7,8) and wherein the cathode active material is associated with at least a portion of the cathode side (figure 1a number 3,4).

Kajiura et al. fail to disclose that the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and the respective anode and cathode current collector. As to claim 14, Kajura et al. fails to disclose that the upper and lower edge of the cathode side of the separator being substantially free of cathode active material and the cathode current collector

Bruneau teaches that the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors (col. 6 lines 35-39) for the purpose of providing an effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Kajiura et al. with the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors in order to provide an effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1) as taught by Bruneau.

As to claim 15, Kajiura et al. discloses that the cathode active material and the cathode current collector are coextant and are substantially centered along the separator (figure 1b number 3,4). As to claim 16, Kajiura et al. discloses wherein the portions of the separator corresponding to at least one of the folds are substantially free of each of the anode active material and the cathode active material resulting in a gap between each side of the separator and the respective current collector (figure 1b number 5 and 10). As to claim 17, Kajiura et al. discloses that the portion of the separator corresponding to each of the folds are substantially free of each of the anode active material and cathode active material resulting in a gap between each side of the separator and the respective current collector proximate each of the folds (figure 1b number 5 and 10). As to claim 18, Kajiura et al. discloses that the anode current collector is coextant with the anode active material (figure 1b number 7,8). As to claim

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19, Kajura et al. discloses that the cathode current collector is coextensive with the cathode active material (figure 1b number 3,4). As to claim 20, Kajura et al. discloses that at least one of a portion of the anode active material and a portion of the cathode active material is associated with at least one of a portion of the anode side and a portion of the cathode side respectively via an adhesive (col. 7 lines 54-55).

6. Claims 10-12,21-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajura et al. and Bruneau and in further view of Warren (6444354).

Kajura et al. and Bruneau discloses the electrode assembly as described above. As to claim 10, Kajura et al. fail to disclose that at least one of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly. As to claim 11, Kajura et al. fails to disclose that at each of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly. As to claim 12, Kajura et al. fails to disclose that each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly. As to claim 21, Kajura et al. fails to disclose that at least one of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly. As to claim 22, Kajura et al. fails to disclose that at each of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly. As to claim 23, Kajura et al. fails to disclose that each of the

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anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly.

As to claim 24, Kajiura et al. discloses an electrode assembly divided to a plurality of segments which are each separated by a fold to in turn facilitate a fan fold orientation (figure 1b) comprising a separator (figure 1a number 11) having an anode side (figure 1a number 6) and a cathode side (figure 1a number 2), an anode current collector (figure 1 a number 8) and a cathode current collector (figure 1a number 4), wherein an anode active material is associated with the anode current collector (figure 1a number 7 and 8) and wherein the cathode active material is associated with the cathode current collector (figure 1a number 3 and 4), and wherein the anode active material is associated with at least a portion of the anode side (figure 1a number 7,8) and wherein the cathode active material is associated with at least a portion of the cathode side (figure 1a number 3,4). Kajiura et al. fails to disclose wherein at least one of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly.

As to claim 25, Kajiura et al. fails to disclose that at each of the anode current collector and the cathode current collector includes at least one slit corresponding to at least one fold of the electrode assembly. As to claim 26, Kajiura et al. fails to disclose that each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly.

Warren teaches that each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the

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electrode assembly (figure 5b, number 54,56) for the purpose of aiding in the ease of the folding steps (col. 7 lines 27-28).

Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Kajura with each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly in order to aid in the ease of the folding steps (col. 7 lines 27-28) as taught by Warren.

As to claim 27, Kajura et al. discloses wherein the portions of the separator corresponding to at least one of the folds are substantially free of each of the anode active material and the cathode active material resulting in a gap between each side of the separator and the respective current collector (figure 1b number 5 and 10). As to claim 28, Kajura et al. discloses that the portion of the separator corresponding to each of the folds are substantially free of each of the anode active material and cathode active material resulting in a gap between each side of the separator and the respective current collector proximate each of the folds (figure 1b number 5 and 10). As to claim 29, discloses that the anode current collector is coextent with the anode active material (figure 1b number 7,8). As to claim 30, Kajura et al. discloses that the cathode current collector is coextent with the cathode active material (figure 1b number 3,4). As to claim 31, Kajura et al. discloses that at least one of a portion of the anode active material and a portion of the cathode active material is associated with at least one of a portion of the anode side and a portion of the cathode side respectively via an adhesive (col. 7 lines 54-55).

Response to Arguments

7. Applicant's arguments filed 7/10/2006 have been fully considered but they are not persuasive.

In response to applicant's argument that Kaijura teaches away from combining with Bruneau because Kaijura teaches away from a stacked configuration and Bruneau teaches a stacked configuration, Kaijura does not teach away from a stacked configuration. Kaijura teaches that both electrodes can be easily aligned with each other simply by stacking the cathode and anode to oppose each other while interposing a separator inbetween (col. 2 lines 45-48). Kaijura teaches that that a plurality of cathodes and anodes must be accurately aligned to oppose each other via separators and it leads to longer periods of time for stacking the electrodes and electrode unit, or requires using a high precision apparatus for alignment (col. 2 lines 52-56). Kaijura does not teach away from a stacked configuration but that it takes a longer time to stack the electrodes and may require the use of a highly precision apparatus for alignment. Preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

Furthermore, Bruneau teaches that the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors (col. 6 lines 35-39) for the purpose of providing an

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effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1). Therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Kajiura et al. with the separator includes an upper edge and a lower edge, at least a portion of the upper edge of one of the anode side and the cathode side of the separator and at least a portion of the lower edge of the one of the anode side and the cathode side of the separator being substantially free of at least one of the respective anode and cathode active material and at least one of the respective anode and cathode current collectors in order to provide an effective adherent capability providing an especially effective bonding area presenting maximum available bonding surface (col. 6 lines 66-col. 7 line 1) as taught by Bruneau.

In response to applicant's argument that Warren teaches from the folding technique of Kajiura therefore teaches away from the suggested combination, Warren teaches that each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly (figure 5b, number 54,56) for the purpose of aiding in the ease of the folding steps (col. 7 lines 27-28). Figure 5b illustrates the folding technique used by Kajiura et al, therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide Kajiura with each of the anode current collector and the cathode current collector each include at least one slit corresponding to each of the folds of the electrode assembly in order to aid in the ease of the folding steps (col. 7 lines 27-28) as taught by Warren.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jane Rhee
September 8, 2006



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER